REMARKS

Claims 27-30 have been examined. By this Amendment, Applicants add new claims 31-36. Therefore, claims 27-36 are all the claims pending in the application.

Claim Rejections - 35 U.S.C. § 101

Claims 27-30 are rejected under 35 U.S.C. § 101 because the claims allegedly do not meet the requirements of 35 U.S.C. § 101. In view of the amendments to the independent claims 27, 28, and 30, Applicants respectfully submit that the claims comply with the requirements of 35 U.S.C. § 101.

Claim Rejections – 35 U.S.C. § 102

Claims 27, 28, and 30 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,275,532 to Hibi *et al.* (hereinafter, "Hibi"). For *at least* the following reasons, Applicants respectfully traverse the rejection.

Applicants respectfully submit that claim 27 is not anticipated by Hibi. For example, claim 27 recites a computer readable medium storing a program for causing a computer to implement functions of coding a motion vector, said functions comprising, *inter alia*, *converting the affine motion parameters to a predetermined number of translational motion vectors*. The Examiner contends that Hibi, in col. 19, lines 3-8, and col. 20, lines 15-20 discloses this feature. In particular, the Examiner alleges that the bilinear interpolation disclosed in Hibi performs the claimed converting function. Applicants respectfully submit that the teachings of Hibi are being misinterpreted in the Office Action.

The cited portions of Hibi describe the operations of the block diagram in FIG. 2, which shows a structure of an interframe predicting portion of a conventional encoding device. Specifically, Hibi, with reference to FIG. 2, states that:

> "[a]n interframe predicting portion of the conventional video-coding device comprises a frame memory portion 1131 for storing already coded video signals, a motion vector detecting portion 1132 for determining a representative motion vector per unit area from a difference between an input video signal and a video signal read from the frame memory portion 1131, a motion vector interpolating portion 1133 for determining a motion vector per pixel from the representative motion vector and a pixel value predicting portion 1134 for preparing a predicted video signal from a video signal read from the frame memory portion 1131 by using the motion vector per pixel" (*see* Hibi: col. 19, lines 14-26, emphasis added)

The motion vector detecting portion 1132 divides the coding video frame (i.e., frame from input video signal) into unit-areas and scans the reference video frame (i.e., frame read from memory portion 1131) to find an area most similar to a current coding unit-area. A displacement of a unit-area of the coding video-frame from the area found in the reference video frame is outputted as a motion vector. The motion vector is a representative motion vector representing an interframe displacement of a respective point within a unit area, which is usually a center of the unit-area as shown in FIG. 3(a) of Hibi (Hibi, col. 19, lines 34-42). That is, the representative motion vector does not correspond to the claimed affine motion **parameters**.

Next, the representative motion vector is transferred to the motion vector interpolating portion 1133. The motion vector interpolating portion 1133 determines motion vectors based on the received representative motion vectors. Here, the motion vector interpolating portion 1133 carries out the affine transformation (Hibi, col. 19, lines 57-63) or the bilinear transformation (Hibi, col. 19, line 63 to col. 20, line 2).

In the bilinear transformation method, a motion vector for each pixel existing within a quadrangular area surrounded by four neighboring representative points is determined by solving

a bilinear transformation expression from the representative motion vectors of the respective points. That is, the bilinear transformation method does not disclose, teach, or suggest converting the affine motion parameters to translational motion vectors, much less disclosing converting the affine motion parameters to a predetermined number of translational motion vectors as set forth in claim 27. Instead, Hibi's bilinear transformation is a transformation of a motion vector per unit-area to a motion vector per pixel.

The motion vector per pixel produced by the motion vector interpolating portion 1133 is transmitted to the pixel value predicting portion 1134 which predicts a pixel value based on the motion vector per pixel. Although the motion vector interpolating portion 1133 is also capable of carrying out an affine transformation based on the received representative motion vector from the motion vector detecting portion 1132, once the affine transformation is carried out, the motion vectors determined by solving the affine transformation expression are also transmitted to the pixel value predicting portion 1134. That is, the computed affine transformation is not then converted to a bilinear transformation. On the other hand, claim 27 recites *converting* affine motion parameters to a predetermined number of translational motion vectors.

In light of the discussion above, Applicants respectfully submit that claim 27 is patentable over Hibi. Accordingly, Applicants respectfully request the Examiner to withdraw the 35 U.S.C. § 102(e) rejection of claim 27.

Claim 28 recites a computer readable medium storing a program for causing a computer to implement functions of coding a motion vector, said functions comprising, *inter alia*, *converting the affine motion parameters to a predetermined number of translational motion vectors*. As such, Applicants respectfully submit that claim 28 is patentable for reasons similar to those given above with respect to claim 27.

Claim 30 recites a computer readable medium storing a program for causing a computer to implement functions of decoding a motion vector, said functions comprising, *inter alia*, *converting obtained translational motion vectors to* ***affine motion parameters****, and performing motion compensation using the obtained affine motion parameters*. The Examiner contends that FIG. 4, col. 19, lines 55-65, col. 20, lines 21-23, and col. 28, lines 24-37 disclose these features. Applicants respectfully disagree.

Applicants submit that that the video decoding device disclosed in Hibi does not convert translational motion vectors to affine motion parameters. In Hibi's video decoding device, a motion vector interpolating portion 123 determines a motion vector per pixel from representative motion vectors that are inputted to the decoding device and weighting coefficients (Hibi, col. 28, lines 26-37). Applicants respectfully submit that the motion vector per pixel determined by the motion vector interpolating potion 123 does not disclose or suggest the claimed affine motion parameters. Nowhere in the cited portions does Hibi disclose any affine motion parameters.

Therefore, Applicants respectfully submit that claim 30 is patentable over Hibi.

Claim Rejections - 35 U.S.C. § 103

Claim 29 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hibi in view of U.S. Patent No. 6,944,227 to Bober. For *at least* the following reasons, Applicants respectfully traverse the rejection.

Claim 29 depends from claim 28. Since Bober does not cure the deficient teachings of Hibi with respect to claim 28, Applicants respectfully submit that claim 29 is patentable *at least* by virtue of its dependency.

New Claims

Applicants respectfully submit that new claims 30-36 are patentable *at least* by virtue of their dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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